

**emco**

**UMILL 1000**

Universal machining center  
for 5-axis machining



# UMILL 1000: MAXIMUM PRECISION FOR UNCOMPROMISING PERFORMANCE

The new Umill 1000 is the universal CNC machining centre that takes your production to the next level. Designed to guarantee maximum efficiency and precision, thanks to simultaneous 5-axis machining, milling pieces with a diameter of 1,000 mm (39.37") and height of 600 mm (23.62") and a weight of up to 1,000 kg (2,204.62 lb) becomes an extremely precise and effective process, guaranteeing very high accuracy. Equipped with linear scales in the linear axes and direct position measuring systems in the rotary axes, the Umill 1000 guarantees minimum tolerances and excellent surface quality. Its innovative design, with a symmetrical tool magazine, steel base filled with polymer concrete and cast iron structures optimised with FEM analysis, maximises rigidity, damping and stability, minimising vibrations and deviations, even in the most complex machining operations. Thanks to its advanced technological solutions, the Umill 1000 is the complete solution for those looking for reliability, high performance and uncompromising production quality.

## 1 MACHINE BASE

- / The machine base consists of welded steel construction stabilised through concrete, optimised with FEM analysis
- / X, Y slide and Z-axis are cast iron
- / Linear scales in X-Y-Z as standard

## 2 TABLE

- / Swivel-rotary table with torque motors on the A- and C-axes
- / Swivel range of the A-axis: +/- 125°
- / Turning table for milling and turning operations with up to 600 rpm available as an option
- / Axis with two absolute encoders

## 3 SPINDLE

- / Motor spindle: 15000 rpm



Machine with optional equipment

/ Vladimir Farkas  
Key Account Manager

*'With the Umill 1000, we offer a highly precise, efficient and flexible complete solution. Thanks to its stable gantry design and the option of milling and turning, even the most complex components can be machined in a single set-up. This combination opens up almost limitless application possibilities – an investment that will not only meet current production requirements, but also those of the future.'*



## 4 ERGONOMIC OPERATING PANEL

- / Available with Heidenhain or Siemens control technology
- / Height adjustable 90° swivelling operating panel
- / EMCONNECT available for Sinumerik

## 5 TOOL CHANGER

- / Tool changer with 30 tool stations
- / Tool changer with 60/90 tool stations available as option

## 6 CHIP REMOVAL

- / The chip removal can be handled by an optionally available hinge-type chip conveyer

# TECHNICAL HIGHLIGHTS



## MACHINE INTERIOR

The working area is completely covered with stainless steel sheets to ensure better chip removal.



## DIRECT DRIVES

The direct drives in X- and Y-axis allow to reach high performances in acceleration ( $6 \text{ m/s}^2$ ) and in rapid motion speeds ( $50 \text{ m/min}$ ). In addition, this ensures maximum precision and high dynamics.



## SWIVEL-ROTARY TABLE

The swivel-rotary table has a large clamping area of  $\varnothing 800 \text{ mm}$  ( $31.5''$ ) and can bear loads of up to  $1,000 \text{ kg}$  ( $2,204.62 \text{ lb}$ ). This makes it possible to simply machine workpieces with an edge size of  $\varnothing 1,000$  and  $600 \text{H mm}$  ( $\varnothing 39.4$  and  $23.6 \text{H}''$ ). Furthermore, it is prepared for the installation of a rotary coupling with 4 ways through the table plate. With a travel range of  $\pm 125^\circ$ , the A-axis provides a larger work area than most models from other manufacturers. The C-axis can be infinitely rotated by  $360^\circ$ .



## TURNING TABLE

The stable turning table for milling and turning operations with speeds of up to  $600 \text{ rpm}$  is available as an option.



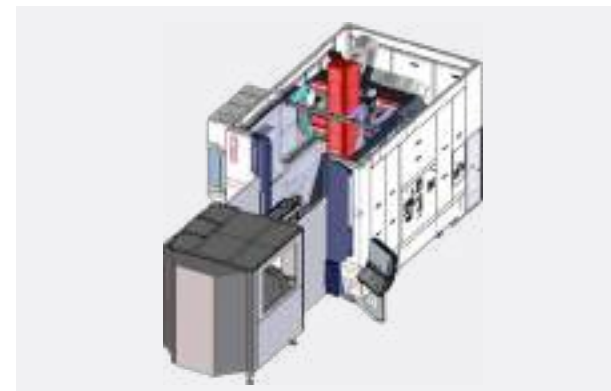
## TOOL CHANGER

The tool changer of the Umill 1000 is a drum magazine for 30 tools. A tool magazine with 60/90 tool stations is available as option. The tools are managed according to the variable tool station coding principle (random), which means that tools are always deposited in the first free magazine station for time reasons. Other tool changer sizes are available upon request.



## CLOSING FLAP FOR TOOL MAGAZINE

The stainless steel closing flap separates the work area from the tool magazine during tool changes, ensuring greater cleanliness.



## AUTOMATION

Different options, such as an automatic door opening function on the side of the machine, a rotary feedthrough in the table centre etc., make it possible to implement different automation solutions. The machine design is flexible designed for automatic loading from the side or front.



## SINUMERIK ONE

The Sinumerik ONE is an universal and flexible CNC system offering free contour programming, milling cycles for complex contours, fast reference point setting with touch probe systems, tilting of the working plane, cylindrical surface machining, 3D tool compensation and fast execution through short block processing times.



## HEIDENHAIN TNC 7

The TNC 7 is a compact, adaptable control ideal for 5-axis simultaneous machining. With its flexible operating concept – workshop-oriented programmability in the HEIDENHAIN plain text dialog or external programming – and its scope of performance, it is perfectly suited for EMCO milling centers.

# HIGHLIGHTS

- / 5-axis simultaneous machining in a gantry structure
- / Top thermostability
- / Top machining precision
- / Modern moving column concept with optimal accessibility
- / Solid swivel-rotary table with torque motors, direct measuring systems dimensions of  $\varnothing 800 \text{ mm}$  provide high stability and precision
- / Wide swivelling range  $\pm 125^\circ$
- / Turning table for milling and turning operations
- / Standard linear scales in X-Y-Z
- / Cutting-edge control technology from Siemens or Heidenhain
- / EMCONNECT available for Sinumerik
- / Extensive options such as 60 / 90 tool stations magazine
- / Optimal chip removal
- / Attractive price-performance ratio
- / Flexible for automation (front)
- / Made in the Heart of Europe

# NETWORKS ARE CREATED INDIVIDUALLY – OUR SOLUTIONS AS WELL



Staying in touch is not only important for people. Staff, machines and the production environment must also be securely networked with each other to ensure an efficient production process. With EMCONNECT, the machine is optimally equipped for this. In addition, EMCONNECT Digital Services provides innovative online services to optimise machine operation. The machine data form the basis for a wide range of applications. In this way, the user has the status of the machine available at any time and in any place.



## Integration into the control

EMCONNECT offers options for situation-dependent operation. Apps can also be used in parallel with the control system. With optimal integration into the NC control system, EMCONNECT complements the NC control with powerful functions for modern control generations (SIEMENS, HEIDENHAIN). The familiar vision of the machine NC control is maintained at all times.



## An innovative concept

These powerful apps may be used independently from the control, while in the background the machine is busy in the production process. With only one click, you can change at any moment between numerical control and EMCONNECT. This is possible with the help of an innovative and ergonomic control panel, equipped with a modern 22" multi-touch display, an industrial PC with associated keyboard and HMI hotkeys.



## Control panel as central platform

With EMCONNECT, the machine control panel becomes a central platform with access to all necessary applications, data and documents. Remote Support, Web Browser and Remote Desktop offer a wide range of connection options, even outside the direct production environment. The optional OPC UA interface allows data exchange with the IT system environment and interaction with other machines for shop floor automation. In this way, EMCONNECT makes an important contribution to highly efficient machine operation.



## Innovative online services

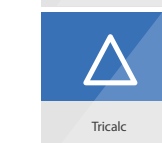
With EMCONNECT Digital Services, all interested users have online access to the current status and evaluations of the machine. Automatic notification in the event of malfunctions or machine stoppages and extended diagnostic options for remote maintenance reduce downtimes and machine downtime to a minimum. Integrated maintenance management supports predictive maintenance based on machine utilisation. Thanks to the continuous development of online services, new functions are always available.

## EMCONNECT HIGHLIGHTS AND FUNCTIONS

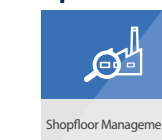
- / Fully networked**  
Remote access to office computers, web browsers and online services with all applications and users connected
- / Structured**  
Clear monitoring of the machine state and the production data
- / Customized**  
Open platform for modular integration of customer-specific applications
- / Compatible**  
Interface for seamless integration into the operating environment
- / User-friendly**  
Intuitive and production-optimized touch operation data
- / Future-proof**  
Continuous extensions as well as easy updates and upgrades

## Standard-Apps

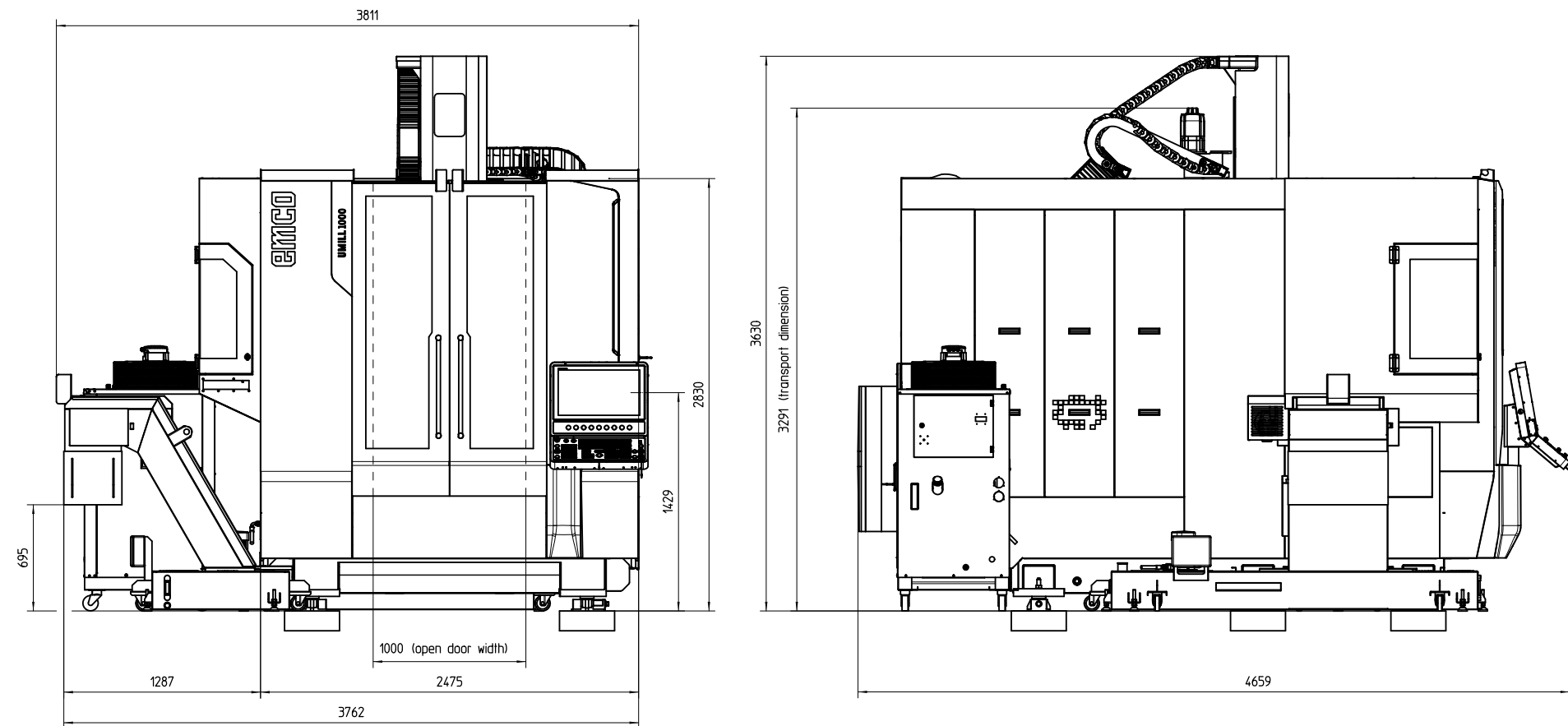
|                    |                     |                  |
|--------------------|---------------------|------------------|
|                    |                     |                  |
| Control            | Dashboard           | Machine Data     |
|                    |                     |                  |
| System             | Maintenance Manager | Digital Services |
|                    |                     |                  |
| Remote Desktop     | Settings            | Web Browser      |
|                    |                     |                  |
| Remote Support     | TeamViewer          | Service          |
|                    |                     |                  |
| Cutting Calculator | Calculator          | Notes            |
|                    |                     |                  |
| Backup & Restore   | File Import         | Documents        |
|                    |                     |                  |
| GD&T               | EMCO TechSheet      | Thread Reference |



## Optional

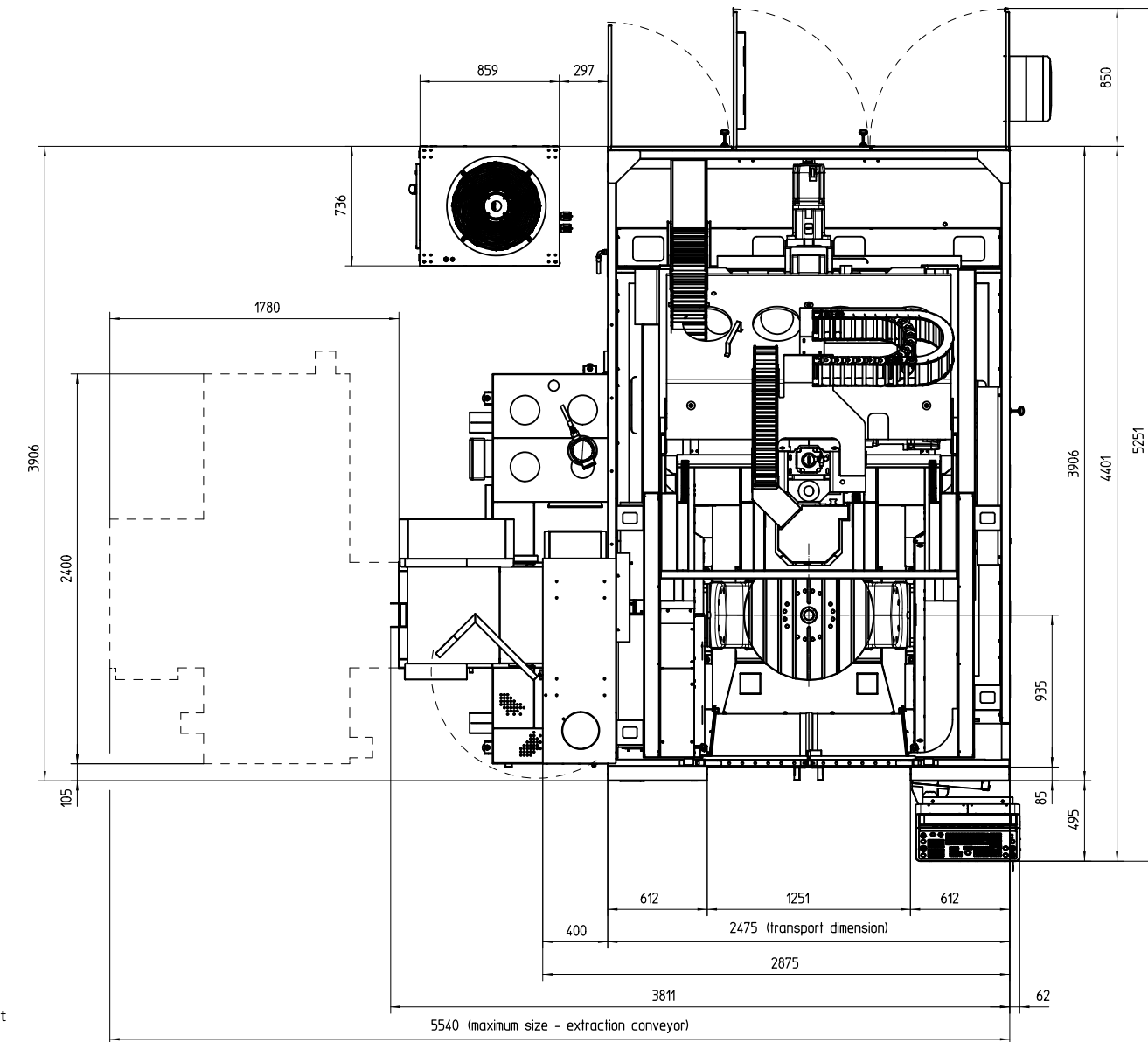


# INSTALLATION PLAN



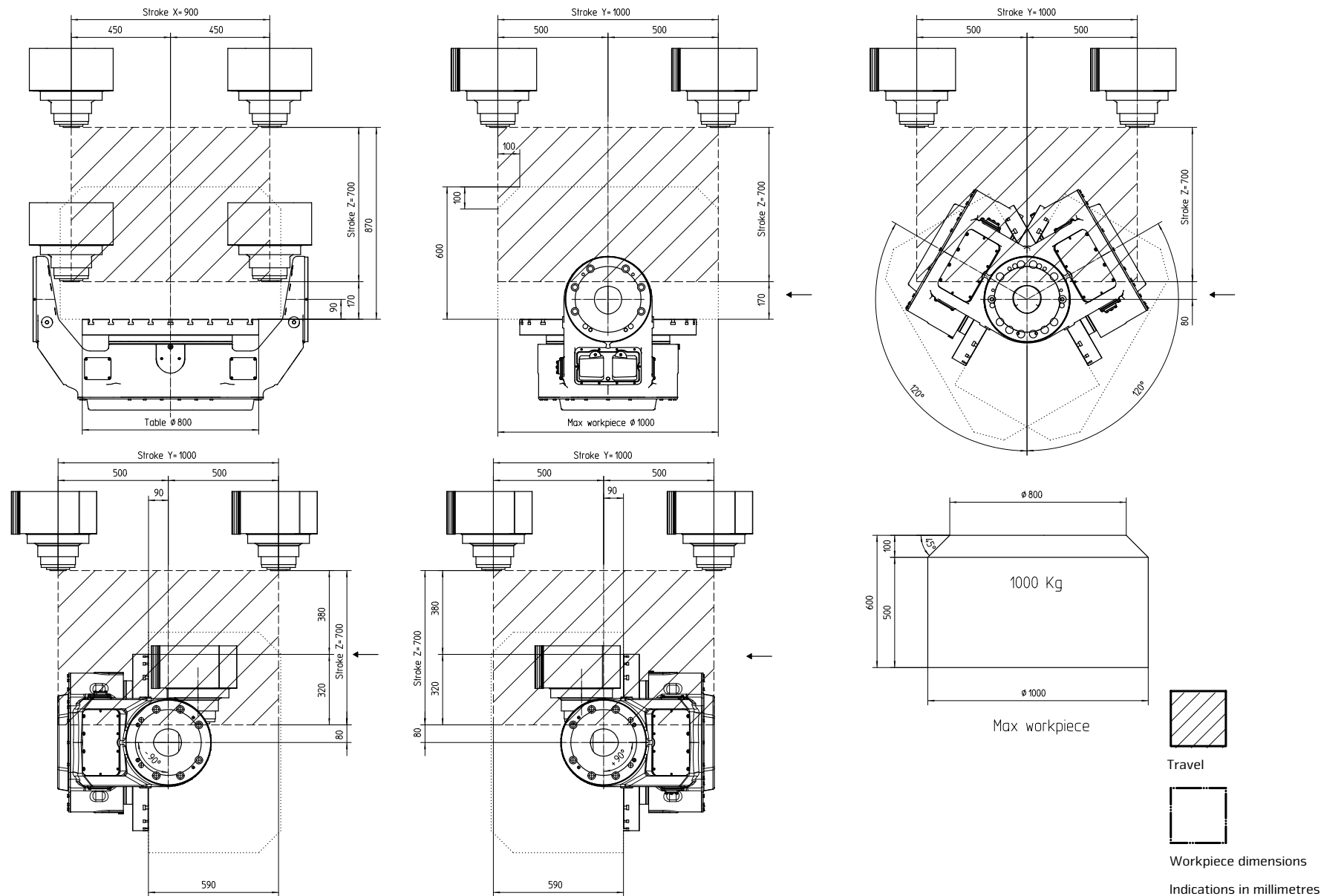
Indications in millimetres

# INSTALLATION PLAN



Machine with optional equipment  
Indications in millimetres

# WORK AREA



# TECHNICAL DATA

## Travel and tolerances

|   |              |
|---|--------------|
| Travel in X   | 900 mm       |
| Travel in Y   | 1000 mm      |
| Travel in Z   | 700 mm       |
| Distance spindle nose – table (min. – max. / motor spindle) | 150 / 650 mm |
| Swivel range A-axis   | +/- 125°     |
| Range of rotation C-axis (rotary table)                     | +0/-360°     |
| Positioning accuracy P according to VDI 3441 *              | 10 µm        |
| Positioning repeatability Ps according to VDI 3441 *        | 4 µm         |
| Positioning accuracy A-axis (tilting)                       | +/- 5 sec.   |
| Positioning accuracy C-axis (table)                         | +/- 5 sec.   |

## Feed

|  |               |
|--|---------------|
| Rapid motion speed X-Y-Z axis                  | 50 m/min      |
| Max. rotational speed A-axis (turning version) | 100 rpm       |
| Max. rotational speed C-axis                   | 100 (600) rpm |
| Max. feed force X axis                         | 8500 N        |
| Max. feed force Y axis                         | 8500 N        |
| Max. feed force Z axis                         | 8500 N        |
| Max. acceleration X-Y-Z axis                   | 6 m/s²        |

## Table

|   |         |
|---|---------|
| Diameter                                    | 800 mm  |
| Table-floor distance                        | 810 mm  |
| Slot number                                 | 9       |
| Distance between two T-slots                | 90 mm   |
| Groove wide                                 | 14 mm   |
| Max. workpiece weight (equally distributed) | 1000 kg |

## Table: Turning version

|                                   |         |
|-----------------------------------|---------|
| Diameter                          | 800 mm  |
| Height to floor                   | 800 mm  |
| Rapid Speed                       | 600 rpm |
| Grooves width "T" (tolerance H7 ) | 14 mm   |
| Grooves number                    | 12      |
| Grooves radial degree             | 30      |
| Center bore on table              | 25 mm   |
| Work piece weight max. (300 rpm)  | 1000 kg |

## Main spindle (motor spindle)

|                        |                |
|------------------------|----------------|
| Speed range            | 50 – 15000 rpm |
| Maximum spindle torque | 138 Nm         |
| Maximum spindle power  | 38 kW          |
| Tool taper             | HSK-A63 (T63)  |

## Tool magazine

|  |                      |
|--|----------------------|
| Number of tool stations                              | 30 (60/90)           |
| Tool changing type                                   | double-armed gripper |
| Tool management                                      | random               |
| Tool changing time (tool-tool) according to VDI 2852 | 4,9 sec.             |
| Max. tool diameter                                   | 80 mm                |
| Max. tool diameter (without neighbouring tools)      | 125 mm               |
| Max. tool length                                     | 350 mm               |
| Max. tool weight                                     | 8 kg                 |
| Total tool weight supported by the magazine          | 160 (240/360) kg     |

## Coolant tank

|                        |          |
|------------------------|----------|
| Tank capacity          | 420 l    |
| Standard pump pressure | 2 bar    |
| Max. capacity at 2 bar | 40 l/min |

## Pneumatic supply

|                        |           |
|------------------------|-----------|
| Min. pressure supply   | 6 bar     |
| Min. capacity required | 250 l/min |

## Lubrication

|                   |        |
|-------------------|--------|
| Spindle           | Grease |
| Caged roller ways | Grease |
| Ball screws       | Grease |

## Dimensions

|  |                |
|--|----------------|
| Total height                           | 3630 mm        |
| Dimensions L x D without chip conveyer | 3450 x 4750 mm |
| Weight                                 | 18000 kg       |

\* Values measured at 22°C with the machine fixed to the ground. Machine with linear scales – distance compensation with laser and motor encoders in the turning axis.

beyond standard /

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